



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,923	03/23/2001	Manfred Engelhardt	GR 98 P 2661	6120

7590 04/04/2003

LERNER AND GREENBERG, P.A.
POST OFFICE BOX 2480
HOLLYWOOD, FL 33020-2480

EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 04/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/816,923	ENGELHARDT, MANFRED	
	Examiner	Art Unit	
	Alexander O Williams	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
 • Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2826

Serial Number: 09/816923 Attorney's Docket #: GR98P2661P

Filing Date: 3/23/2001; claimed foreign priority to 9/23/98

Applicant: Engelhardt

Examiner: Alexander Williams

Applicant's Amendment in Paper # 14, filed 1/16/03, has been acknowledged. Applicant's amendment to the previously determined method claims has been acknowledged. The method claim language has been removed and claims 7-11 will now be examined in this amended form.

The disclosure is objected to because of the following informalities: The related application information should be updated.

Appropriate correction is required.

Claims 1 to 11 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The barrier layer is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). In the specification, several elements are described by the following: For example, on page 11, line 22, "an insulating diffusion barrier layer 2"; on page 12, line 6, the insulating barrier layer 2; page 12, line 16, "a first diffusion barrier structure 5"; page 13, line 1, "a first diffusion barrier layer 7"; on page 13, line 22, "a conformal diffusion barrier layer 11"; on page 15, line 6, "a second conductive diffusion barrier layer 12" are described. In the claims, several elements are described by the following: a diffusion barrier layer; an electrically conductive first diffusion barrier structure; and an electrically conductive second

Art Unit: 2826

diffusion barrier structure. It is unclear and confusing to which element is describing which between the elements in the specification and the claims.

Any of claims 1 to 11 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 11, **insofar as they can be understood**, are rejected under 35 U.S.C. § 102(e) as being anticipated by Greco et al. (U.S. Patent # 6,221,780 B1).

For example, in claim 1 and similar claim 7, Greco et al. (figures 1 to 11) specifically figure 11 show a integrated circuit configuration, comprising: an insulating layer **22**; a first conductive structure **26A,26B** embedded in said insulating layer; a diffusion barrier layer **46** and a second insulating layer **48** disposed above (**above 56**)

said first conductive structure and being formed with a contact hole **70** reaching as far as said first conductive structure and having side walls **65**; a second conductive structure **50** disposed in said contact hole and conductively connected to said first conductive structure; and spacers formed on said side walls of said contact hole above said diffusion barrier layer, said spacers acting as a barrier to diffusion of a material from said first conductive structure into said second insulating layer and reaching as far as a surface of said diffusion barrier layer.

Claims 1 to 11, **insofar as they can be understood**, are rejected under 35 'J.S.C. § 102(e) as being anticipated by Yeh et al. (U.S. Patent Application Publication # 2002/0098673 A1).

For example, in claim 1, Yeh et al. (figures 1A to 2B) specifically figure 2B show a integrated circuit configuration, comprising: an insulating layer **212,204**; a first conductive structure (**shown as 122 in figure 1H**) embedded in said insulating layer; a diffusion barrier layer (**shown as 124 in figure 1H**) and a second insulating layer **212** disposed above said first conductive structure and being formed with a contact hole (**contact hole within 206 region**) reaching as far as said first conductive structure and having side walls ; a second conductive structure (**within the contact hole in the 206 region, not labeled**) disposed in said contact hole and conductively connected to said first conductive structure; and spacers (**formed in the 106 region next to 212**) formed on said side walls of said contact hole above said diffusion barrier layer, said spacers acting as a barrier to diffusion of a material from said first conductive structure into said second insulating layer and reaching as far as a surface of said diffusion barrier layer.

Response

Applicant's arguments filed 1/16/03 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The listed references are cited as of interest to this application, but not used at this time.

Art Unit: 2826

Field of Search	Date
U.S. Class and subclass: 257/758,700,701,704,741,751,750,753,774,773,759,760, 762-765,767	9/16/02 3/25/03
Other Documentation: foreign patents and literature in 257/758,700,701,704,741,751,750,753,774,773,759,760, 762-765,767	9/16/02 3/25/03
Electronic data base(s): U.S. Patents EAST	9/16/02 3/25/03

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is **(703) 308-4863**.

Any inquiry of a general nature or relating to the status of this application should be directed to the ***Technology Center 2800 receptionist*** whose telephone number is **(703) 308-0956**.

3/25/03



Primary Examiner
Alexander O. Williams